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### THE SILVER MINING INDUSTRY IN CANADA, 1940

(a) The Silver-Cobalt Mining Industry

(b) The Silver-Lead-Zinc Mining Industry.

Definition of the Industry - Silver Mining in Canada is not a distinct mining industry inasmuch as silver or silver-bearing minerals usually occur in association with other metals of economic value—with lead and zinc; with cobalt, nickel and arsenic; with lode and placer free gold; in copper-gold and nickel-copper ores, and at Great Bear Lake, N.W.T., with uranium and radium. Silver-lead-zinc mining is a very important industry in British Columbia and, to a lesser extent, in the Yukon Territory. In Eastern Canada, ores containing lead and zinc have been mined in Ontario, Quebec and Nova Scotia.

It is to be noted that, in addition to its recovery from silver-lead-ores, zinc is now produced in large quantities from the copper-gold-silver ores of the Flin Flon mine, a property located on the Manitoba-Saskatchewan boundary. Zinc concentrates have been produced in British Columbia from copper-gold-silver ores by the Britannia Mining and Smelting Co. Ltd.; the metal also occurs with copper-gold-silver ores in Quebec and commercial shipments of zinc concentrates made from these particular ores have been made yearly since 1937.

Statistical data contained in this report are essentially those pertaining to the mining of silver-cobalt and silver-lead-zinc ores and, to a lesser extent, silver-pitchblende ores.

### PRICES

Among the outstanding features in Canada's Mining Industry was an agreement made in 1939 by the large base metal producers and the Imperial Government by which the producers were to supply the Imperial Government with copper, lead and zinc at prices which prevailed shortly before the outbreak of the war. Canada can now furnish large quantities of these metals in the refined form, whereas in 1914 no refined copper, nickel or zinc and only a comparatively small amount of refined lead were produced in this country.

Table 1 - AVERAGE YEARLY PRICES FOR METALS, 1935, 1939 and 1940

Metal	Market	Unit	1935	1939	1940
			\$	\$	\$
Antimony (ordinaries) .....	New York	Pound	0.13616	0.12359	0.14
Arsenic, white (nominal) .....	New York	Pound	0.035	0.03	0.035
	(New York	Pound	0.08649	0.10965	0.11296
Copper .....	(Montreal	Pound	0.08488	0.1077	0.11455
	(London	Long ton	35.430	49.169	(a)
Gold (in Canadian funds) .....	...	Fine oz.	35.19	36.141	38.50
	(New York	Pound	0.04065	0.0505	0.052
Lead .....	(Montreal	Pound	0.03925	0.04235	0.05
	(London	Long ton	14.238	15.437	(a)
Nickel .....	New York	Pound	0.35	0.35	0.35
Platinum .....	London	Fine oz.	*7.325	*7.631	(a)
Silver .....	New York	Fine oz.	0.64275	0.39082	0.34773
Tin .....	New York	Pound	0.50420	0.50323	0.49827
Zinc .....	(Montreal	Pound	0.05992	0.0468	0.05
	(London	Long ton	14.032	14.950	(a)

NOTE: All prices in dollars per unit excepting London copper, lead and zinc prices which are quoted in pounds sterling per long ton.

\* Prices for platinum are quoted in pounds sterling per fine ounce.

(a) No quotations.

(a) THE SILVER-COBALT MINING INDUSTRY

The mining of silver-cobalt ores in Canada is confined to the district of Temiskaming in Northern Ontario. Veins containing these metals were discovered at or near the present town of Cobalt in 1903 and shipments of ores from this area have been continuous since 1904. Depletion and exhaustion of ore reserves during recent years have resulted in a relatively great decline in the production of metals from these deposits. During the past few years the greater part of the output of silver-cobalt ores in Northern Ontario has originated in the Miller-Lake O'Brien mine, Gowganda, and the O'Brien mine, Cobalt. In most instances, operations at other properties, some of which were prominent as producers in the past, were conducted by lessees and shipments ranged from one to several hundred tons. The increased demand for cobalt as an alloying metal has, for some years, stimulated operations of a salvage nature at several of the older mines.

The gross value of shipments made by silver-cobalt mines in 1940 totalled \$866,610 and the net value of sales was estimated at \$809,263. The number of shippers was reported at 48 and the quantity of ore mined amounted to 43,245 tons. The O'Brien mine at Cobalt was operated under lease in 1940 while operations again, chiefly of a salvage nature, were stimulated throughout the camp by the increased demand for cobalt as an important war-time material.

Table 2 - PRINCIPAL STATISTICS OF THE SILVER-COBALT MINING INDUSTRY IN CANADA, 1929 - 1940

Year	Number of active operators	Number of operating mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of bullion, ore, concentrates or residues sold
	(A)	(a)	\$		\$	\$	\$
1929 .....	27	32	15,820,435	1,149	1,532,533	407,952	3,918,316
1930 .....	23	28	12,268,322	1,043	1,488,531	352,844	3,637,181
1931 .....	22	26	9,352,520	786	1,149,639	227,467	1,925,593
1932 .....	17	20	3,005,872	369	551,255	124,478	1,735,708
1933 .....	12	14	3,365,755	242	322,281	83,565	1,071,602
1934 .....	15	16	5,102,491	286	361,726	85,685	1,390,318
1935 .....	27	28	6,380,731	402	494,791	114,439	1,070,716 (x)
1936 .....	24	25	5,946,702	363	458,546	104,372	915,376 (x)
1937 .....	23	25	2,655,060	300	394,386	90,134	540,762 (x)
1938 .....	34	30	2,696,217	297	386,851	73,549	288,293 (x)
1939 .....	36	43	2,461,556	323	412,728	63,486	653,032 (x)
1940 .....	48	44	357,080	123	158,024	10,900	809,263 (x)

(A) Includes leasers shipping from dumps.

(a) Includes properties on which operations were of a salvage nature only, and the number of mines as recorded is based partially on data of a conjectural nature.

(x) Net value.

NOTE: The cost of process supplies used - explosives, etc. - was recorded for the first time in 1935 and, beginning with 1935, this cost together with the cost of fuel and electricity purchased, freight and smelter charges were deducted from the gross value of sales.

Table 3 - NUMBER OF WAGE-EARNERS ON PAYROLL OR TIME RECORD IN THE SILVER-COBALT MINING INDUSTRY, 1936-1940

Month	1936	1937	1938	1939	1 9 4 0		
					MINE		MILL
					Surface	Underground	
January .....	303	259	233	296	24	38	1
February .....	280	256	238	281	25	35	12
March .....	270	250	235	281	27	40	12
April .....	272	257	227	293	33	40	11
May .....	310	271	252	312	45	49	28
June .....	316	264	264	349	52	58	28
July .....	335	260	278	325	58	60	26
August .....	353	274	284	308	47	60	26
September .....	365	281	289	268	45	59	24
October .....	372	283	295	233	43	57	27
November .....	357	272	282	190	36	46	6
December .....	311	252	272	180	27	42	5



Table 4 - STATISTICS OF THE SILVER-COBALT MINES AND MILL OPERATIONS IN CANADA, 1938 - 1940

		1 9 3 8	1 9 3 9	1 9 4 0
Number of mines in operation (x).....		30	43	44
Ore mined .....	tons	59,408	60,431	43,245
Ore treated (milled) (a) .....	tons	55,719	79,164	49,982
Tailings treated .....	tons	...	145	10,577
Concentrates produced .....	tons	1,258	2,334	1,627
Gross value of bullion, ore, concentrates and residues sold .....	\$	734,363	890,128	866,610
Cost of freight .....	\$	41,391(b)	19,054	3,127
Smelter charges .....	\$	82,783(b)	49,056	15,494
Cost of fuel and purchased electricity used .....	\$	73,549(b)	63,486	10,900
Cost of process supplies used .....	\$	248,347	105,500	27,836
Net value of sales .....	\$	288,293	653,032	809,263

(x) All mines located in Northern Ontario and includes properties on which the operations consisted only in salvaging of ore from dumps, etc.

(a) Does not include crude ore shipped.

(b) Partly estimated, as data were unobtainable from several small shippers.

Table 5 - FUEL AND ELECTRICITY USED IN THE SILVER-COBALT MINING INDUSTRY, 1939 and 1940

Kind	Unit of measure	1 9 3 9		1 9 4 0	
		Quantity	Cost at works \$	Quantity	Cost at works \$
Bituminous coal - Canadian .....	ton	356	8,488	...	...
Imported .....	ton	508	4,709	120	1,230
Anthracite coal - From United States .....	ton	97	1,568	...	...
Other .....	ton	217	3,241	161	2,855
Gasoline .....	gal.	7,426	2,352	2,596	809
Kerosene or coal oil .....	gal.	26	6	...	...
Fuel oil and diesel oil .....	gal.	8,704	1,111	2,300	328
Wood (cords of 128 cu. ft. of piled wood) .....	cord	422	2,441	75	521
Electricity purchased, including service charges .....	K.W.H.	4,921,586	39,570	514,800	5,157
TOTAL .....	\$	...	63,486	...	10,900
Value of explosives and other process supplies used .....	\$	...	105,500	...	27,836

**ARSENIC** - Production of arsenic in Canada during 1940 totalled 2,093,275 pounds valued at \$62,798 compared with 1,741,917 pounds at \$52,257 in the preceding year. During recent years refined arsenic has been produced only by the Deloro Smelting and Refining Company Limited in its plant located at Deloro, Ont. It is recovered by this Company entirely in the treatment of silver-cobalt ores mined in Northern Ontario. Production figures as published represent the element in the form of arsenious acid or white arsenic.

Commercial production of new arsenic in all forms from Canadian ores since 1835 to the end of 1940 amounted to 68,340 short tons valued at \$6,591,659. The largest annual output occurred in 1918 in which year 3,560 short tons worth \$563,639 were recorded. Arsenic is often a constituent of gold ores and has been commercially recovered from auriferous ores mined in Nova Scotia, Ontario and British Columbia. Arsenical gold ores are now being treated at mines located in Northwestern Quebec and in the Thunder Bay District of Ontario. During 1940 Beattie Gold Mines Ltd., Duparquet, Quebec produced 2,520 short tons of crude arsenic ( $As_2O_3$ ) and the O'Brien Gold Mines Ltd., Cadillac township, Quebec, 371 short tons of crude arsenic. No commercial shipments of arsenic were reported by either Company during the year under review; however, a shipment of crude arsenic was made in 1940 for experimental purposes by O'Brien Gold Mines Ltd.; this was consigned to the Deloro smelter, Deloro, Ontario.

Table 6 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ARSENIC, 1939 and 1940

	1 9 3 9		1 9 4 0	
	Quantity	Value	Quantity	Value
		\$		\$
<b>PRODUCTION (x) -</b>				
White arsenic .....	1,741,917	52,257	2,093,275	62,798
<b>IMPORTS -</b>				
White arsenic (arsenious oxide) .....	516,236	7,976	3,167	250
Sulphide of arsenic .....	125	54	1,205	242
Soda, arseniate of, biarseniate and stannate of ...	32,054	6,739	19,350	6,596
Arsenate of lead .....	568,344	49,238	490,512	40,866
Arsenate of lime .....	389,557	23,643	85,852	5,283
TOTAL .....	...	87,650	...	53,237
<b>EXPORTS - Arsenic - TOTAL .....</b>	906,300	26,389	1,127,100	33,362

(x) Entirely from Ontario.

Table 7 - CONSUMPTION OF ARSENIOUS OXIDE AND ARSENIC ACID IN THE MANUFACTURE OF CANADIAN INSECTICIDES, 1932 - 1939

Year	Pounds	\$	Year	Pounds	\$
1932 .....	1,721,044	69,250	1936 .....	3,368,956	106,132
1933 .....	3,116,401	110,011	1937 .....	3,296,559	102,651
1934 .....	4,709,443	168,185	1938 .....	3,029,145	93,873
1935 .....	2,736,089	86,983	1939 .....	4,287,435	132,584

Table 8 - WORLD'S PRODUCTION OF ARSENIC, 1936, 1937, 1938 and 1939 (Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries") (Long tons)

Producing Country and Description	1936	1937	1938	1939
<b>BRITISH EMPIRE</b>				
United Kingdom -				
White arsenic and arsenic soot .....	153	95	65	(a)
Southern Rhodesia -				
White arsenic .....	...	...	19	(a)
Canada (sales) -				
White arsenic .....	610	620	971	778
Australia -				
White arsenic .....	3,691	3,387	3,999	(a)
<b>FOREIGN COUNTRIES</b>				
Belgium (exports) -				
White arsenic .....	2,688	2,991	2,664	3,280
Czechoslovakia -				
Antimony ore (As content) .....	53	30	(a)	(a)
France -				
Ore (As content) .....	9,490	3,909	7,689	(a)
White arsenic (As content) .....	7,104	9,073	9,659	(a)
Germany -				
Ore (As content) .....	1,843	(a)	(a)	(a)
Greece -				
White arsenic .....	84	230	76	(a)
Pyrites (As content) .....	770	750	899	(a)
Italy -				
Ore .....	148	15,826	17,976	(a)
White arsenic .....	...	...	797	(a)
Portugal -				
Pyrites (As content) .....	74	...	...	(a)
White arsenic .....	148	21	1	97

Table 8 - WORLD'S PRODUCTION OF ARSENIC, 1936, 1937, 1938 and 1939 (Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries") - (Concluded)  
(Long tons)

Producing Country and Description	1936	1937	1938	1939
<u>FOREIGN COUNTRIES (Concluded)</u>				
Roumania -				
Pyrites (As content) .....	30	32	33	(a)
Sweden -				
Ore (As content) .....	22,944	20,623	21,141	(a)
White arsenic .....	8,510	(a)	(a)	(a)
Mexico -				
White arsenic .....	8,392	10,592	8,754	6,951
United States -				
White arsenic .....	13,731	15,013	14,897	19,947
Brazil -				
White arsenic .....	720	705	512	702
Japan -				
White arsenic .....	2,587	(a)	(a)	(a)
Korea -				
White arsenic .....	226	(a)	(a)	(a)
Turkey -				
Ore .....	16	27	25	(a)

White arsenic is also produced in Germany, U.S.S.R., and China.

(a) Information not available.

COBALT - The Canadian output of cobalt comes entirely from the silver-cobalt deposits of northern Ontario and includes cobalt recovered and sold in the metallic state, the cobalt content of oxides and salts made and sold and the metal content of cobaltiferous ores exported. Production data for 1940 are not available for publication.

There is at present only one smelter in Canada treating cobalt ores; this is the plant of the Deloro Smelting and Refining Company, Limited, located at Deloro, Ontario. This Company produced mixed nickel and cobalt oxides at Deloro for the first time in 1910. Continuous operations were conducted by the Company throughout 1940 and production included cobalt metal, cobalt salts, cobalt oxide, arsenic and silver bullion. It is also interesting to note that in 1939, for the first time, cobalt residues were received by the Deloro Smelting and Refining Company, Limited from Africa. These residues are now treated by the Company for the recovery of the cobalt content. Since 1904, the first year for which cobalt production was recorded in Canada, there were produced, to the end of 1939, in all forms, 33,063,655 pounds valued at \$31,921,836. The outbreak of war in Europe in 1939 was reflected in both an increased demand and price for cobalt.

As a result of the extensive research, the use of cobalt continues to expand, consequently world production has increased greatly. Cobalt oxide is used in the ceramic industry; cobalt salts in the preparation of driers for use in paints, varnishes, and linoleums and as a catalyst; and cobalt metal in various types of high-grade steels (especially metal cutting and magnet steels), as a catalyst, and in electroplating.

"Metal and Mineral Markets" - New York, reported prices as follows: July, 1941 - Cobalt metal, 97 to 99 per cent \$2.11 per pound for small lots, spot; on lots of 100 pounds or more \$1.50. Cobalt ore, New York, May, 1941--per pound of cobalt: 8 to 9 per cent grade 80 cents; 9 to 10 per cent, 90 cents; 10 to 11 per cent, 90 to 95 cents; 11 to 12 per cent, 95 cents to \$1.00; 12 to 13 per cent, \$1.00 to \$1.05; carload lots f.o.b. Ontario--prices nominal.



Table 9 - PRODUCTION OF COBALT IN CANADA, 1913 - 1919 and 1929 - 1940

Year	Pounds	Year	Pounds
1913 .....	1,642,000	1931 .....	521,051
1914 .....	702,000	1932 .....	490,631
1915 .....	412,000	1933 .....	466,702
1916 .....	800,000	1934 .....	594,671
1917 .....	674,000	1935 .....	681,419
1918 .....	760,000	1936 .....	887,591
1919 .....	596,000	1937 .....	507,064
		1938 .....	459,226
1929 .....	929,415	1939 .....	732,561
1930 .....	694,163	1940 .....	not published

Table 10 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF COBALT, 1939

	Quantity	\$
<b>PRODUCTION</b> (In terms of metallic cobalt and cobalt in oxides and salts sold and in ores exported) ..... pounds	732,561	1,213,454
<b>IMPORTS -</b>		
Cobalt ore ..... pounds	541,500	148,410
Oxide of cobalt ..... pounds	525	301
<b>EXPORTS -</b>		
Cobalt, contained in ore ..... pounds	204,100	173,043
Cobalt, metallic ..... pounds	2,600	3,250
Cobalt, alloys ..... pounds	135,679	264,861
Cobalt oxides and cobalt salts ..... pounds	606,942	814,807

NOTE: FIGURES FOR 1940 ARE NOT BEING PUBLISHED.

Table 11 - WORLD'S PRODUCTION OF COBALT, 1936, 1937, 1938 and 1939 (Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")

Producing Country	1936	1937	1938	1939
<b>BRITISH EMPIRE</b>				
Northern Rhodesia .....	9,078	17,409	28,762	31,138
Canada (c) .....	7,925	4,527	4,100	6,541
Burma (b) .....	5,910	5,475	4,034	(a)
<b>FOREIGN COUNTRIES</b>				
Belgian Congo .....	13,480	(d) 30,000	(d) 26,000	(a)
French Morocco (estimated) .....	7,700	10,900	13,500	(a)
Mexico .....	...	...	17	(a)
Bolivia .....	...	6	(a)	(a)

Complex ores containing cobalt are produced in Finland, Germany, Greece, Japan and China, but figures of cobalt content are not available.

(a) Information not available.

(b) Estimated cobalt content of nickel-speiss exported to Hamburg.

(c) Metal recovered from smelter products plus cobalt contained in cobalt ores and concentrates exported.

(d) Estimated.

Table 12 - COBALT SALTS USED IN THE MANUFACTURE OF CANADIAN PIGMENTS AND PAINTS, 1932 - 1939

Year	Pounds	\$	Year	Pounds	\$
1932 .....	17,021	10,960	1936 .....	170,932	43,230
1933 .....	10,885	7,463	1937 .....	37,258	17,062
1934 .....	26,300	14,069	1938 .....	43,703	17,993
1935 .....	110,419	33,292	1939 .....	52,979	21,638

OPERATORS IN CANADIAN SILVER-COBALT MINING INDUSTRY, 1940

<u>Name of Operator</u>	<u>Head Office Address</u>	<u>Location</u>
Benner, R. (Silver Cross)	Box 208, Cobalt	Coleman Tp.
Bond, S. (University)	Cobalt	Coleman Tp.
Brocklebank, A. (Savage)	Cobalt	Coleman Tp.
Cain, P. E. (Wettlaufer)	Cobalt	S. Lorraine
Caverley, B. (Badger)	Cobalt	Cobalt
Cobalt Products Ltd. (x)	812 Montreal Trust Bldg., Toronto	Bucke Tp.
Comet Leasing Co.	Box 274, Cobalt	Coleman Tp.
Cross Lake Lease (O'Brien)	Box 390, Cobalt	Kerr Lake
Davis, Adam N. (Nipissing)	Box 554, Cobalt	Coleman Tp.
Davis, Norman B. (Werner Lake)	207 Victoria Bldg., Ottawa	Cobalt
Hudson Bay Mines Ltd. (P. Peterson)	New Liskeard	Kenora Dist.
La Rose-Rouyn Mines Ltd.	R. 507 .. 112 Yonge St., Toronto	Coleman Tp.
Martin, F.	Cobalt	Coleman Tp.
McCready, Russell & Giffin	Box 150, Cobalt	Wendigo
Mercier, Raoul (Tretheway)	Box 547, Cobalt	Coleman Tp.
Millwright Mine Ltd.	244 Bloor St. W., Toronto	Coleman Tp.
Morgenthaler, A. G. (Adanac)	21085 .. 2nd St. Philadelphia, Pa., U.S.A.	S. Lorraine
Morrison, Nail (Morrison)	Cobalt	Coleman Tp.
Murphy and Landry (Coniagas)	Cobalt	Gowganda
Nipissing Mining Co. Ltd. (x)	Cobalt	Coleman Tp.
Nerlip Mines Ltd.	46 Wolverton Ave., Toronto	Cobalt
O'Shaughnessy, C. V. J. (x)	Box 319, Cobalt	S. Lorraine
Peterson, P. (Hudson Bay)	Cobalt	Coleman Tp.
Puro, R. and Palmi, S. (Coniagas)	Box 169, Cobalt	Coleman Tp.
Richardson, F. M. (Casey)	Cobalt	New Liskeard
Rowe, A. and Stuckay, C. (Frontier)	Box 755, Cobalt	Silver Centre
Sobel, J. J. (Bartlett)	Elk Lake	Milner Tp.
Smith, W. H. (Smith Cobalt)	Box 221, Cobalt	Coleman Tp.
Sutherland, J. H. (Lauson)	Cobalt	Coleman Tp.
Sopha & Stewart (Cobnor)	Box 692, Cobalt	Cobalt Dist.
Taylor, W. D. (Trout Lake)	Box 632, Cobalt	S. Lorraine
Temiskaming Mining Co. Ltd.	25 King St. W., Toronto	Cobalt

(x) Conducted milling operations.

NOTE: In addition to the names listed, there were several small shippers from whom official reports were unobtainable.

(b) THE SILVER-LEAD-ZINC MINING INDUSTRY

In 1940 the silver-lead-zinc mining industry of Canada reported 82 operators or firms as being actively engaged in the mining, prospecting or development of silver-lead-zinc deposits and of these operators 72 reported commercial shipments during the year under review.

NOVA SCOTIA - Production of silver-lead-zinc ores in Nova Scotia in 1940 represented only shipments of zinc concentrates made from stock accumulated at the Stirling mine during previous mining operations. The Stirling mine is now inactive and milling ceased February 13th, 1938.

QUEBEC - In Lemieux Township, Gaspé County, considerable prospecting of lead-zinc deposits in 1940 was reported by the Federal Zinc and Lead Co. Ltd.; no shipments of ores were reported from these operations. During the year under review, only pumping and ordinary maintenance operations were conducted at the Tetreault mine, located at Montauban les Mines. In the township of Grand Calumet, work was suspended in March, 1940 by Calumet Mines Ltd.; operations during the early months of the year included 1,421 feet of diamond drilling. Zinc concentrates were produced in Northwestern Quebec in 1940 from the copper-gold-silver ores of the Normetal mine; these were exported to the United States.



ONTARIO - The only company reporting silver-lead-zinc mining operations in Ontario in 1940 was the Lennox Mines Co. Ltd.; this Company carried on surface work in January and February, but no commercial ore shipments were made. The property is located in the township of Sheffield, county of Lennox-Addington.

BRITISH COLUMBIA - British Columbia is the most important producer of silver-lead-zinc ores in the Dominion. The gross value of shipments of these ores during 1940 amounted to \$19,867,669 and the net value of same was estimated at \$15,976,502. The industry in British Columbia provided employment to 1,433 persons and distributed \$2,632,983 in salaries and wages.

The Consolidated Mining & Smelting Company of Canada Ltd. is the largest single producer of silver-lead-zinc ores in Canada. The production of this Company comes from the Sullivan mine located at Kimberley. The Company reported that ore development in 1940 was kept ahead of production; mining costs for the year were a little higher than in 1939; milling costs, however, were lower, the result being that the cost of mining and milling in 1940 was exactly the same as in 1939. The grade of ore extracted was slightly higher than in the previous year.

Base Metals Mining Corp. Ltd. reported that milling was recommenced at the Monarch mine on January 15th, 1940, and the concentrator operated at full capacity throughout the year. Shipments of concentrates started on January 22nd, 1940 and have been going forward steadily since then. Excellent recoveries and grades of concentrates have been obtained. During the year, the major amount of ore mined was in the East Monarch.

In the Greenwood Mining Division, mining operations were conducted continuously throughout the year by Highland-Bell Ltd. Crude ore is shipped by this Company to the Trail smelter. At Silverton, milling operations commenced at the Standard mine by the Western Exploration Co. Ltd. on September 11th; both lead and zinc concentrates were produced for export. In addition to these larger operations, several other properties reported relatively smaller shipments and considerable work was conducted under lease.

YUKON - In Yukon the Mastiff mine was operated by Settlementier and Bermingham from February to June. Crude silver-lead ore from this property was exported to the United States. At Galena Hill in the Mayo district, mining operations were conducted throughout the year by the Treadwell Yukon Corp. Ltd.; milling was carried on from April 15th to September 15th; both crude silver-lead ore and silver-lead concentrates were shipped to a smelter in the United States.

NORTHWEST TERRITORIES - Eldorado Gold Mines Ltd. operated its pitchblende-silver property at Great Bear Lake from January 1st to June 18th, then closed down. Pitchblende concentrates were shipped to the Company's radium refinery located at Port Hope, Ontario and silver concentrates were consigned to Tacoma, Wash.

Table 13 - PRINCIPAL STATISTICS OF THE SILVER-LEAD-ZINC MINING INDUSTRY(x) IN CANADA, ALTERNATE YEARS, 1927-1933; and 1935-1940

Year	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of ores and concen- trates sold(b)
	(a)	(a)	\$		\$	\$	\$
1927 .....	157	173	28,036,330	3,106	4,807,817	588,520	17,520,130
1929 .....	149	168	50,573,661	4,153	6,482,392	793,159	22,748,089
1931 .....	39	40	31,152,078	1,299	2,149,921	485,106	6,351,975
1933 .....	38	39	13,080,224	1,024	1,369,510	260,621	7,569,867
1935 .....	69	70	16,596,941	1,657	2,431,110	438,126	10,553,086
1936 .....	88	89	19,372,600	1,870	2,917,832	680,677	13,814,645
1937 .....	128	130	29,637,739	2,220	3,914,643	845,898	22,740,582
1938 .....	107	108	30,386,714	1,640	3,027,915	702,571	18,483,945
1939 .....	82	83	23,664,620	1,646	2,803,057	667,661	13,555,609



Silver

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Table 13 - PRINCIPAL STATISTICS OF THE SILVER-LEAD-ZINC MINING INDUSTRY(x) IN CANADA, ALTERNATE YEARS, 1927-1933; and 1935-1940 - (Concluded)

Year	Number of active operators	Number of operating plants or mines	Capital employed	Number of employees	Salaries and wages	Cost of fuel and electricity	Value of ores and concen- trates sold(b)
	(a)	(a)	\$		\$	\$	\$
1940							
British Columbia.	74	75	18,120,178	1,433	2,632,983	380,786	15,976,502
Yukon and North- west Territories	3	3	1,781,630	145	414,602	86,106	372,872
Quebec, Nova Scotia and Ontario(c) .....	5	5	67,390	7	4,947	1,265	90,156
TOTAL .....	82	83	19,969,198	1,585	3,052,532	468,157	16,439,530

(x) Since 1931 includes data relating to mining of silver-pitchblende ores in the Northwest Territories.

(a) Since 1934 includes a number of small shippers from whom no particulars were received relating to capital, wages, etc.

(b) Commencing in 1935, the value of fuel, purchased electricity and process supplies have been deducted.

(c) Three firms in Quebec, 1 in Ontario, 2 in Yukon, 1 in Northwest Territories and 1 in Nova Scotia.

NOTE: For value of process supplies used in 1939 and 1940, see Table 16, also the statistics shown in this report do not include those relating to smelting and refining.

Table 14 - NUMBER OF WAGE-EARNERS, BY MONTHS, IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1938 - 1940

Month	1938	1939	1 9 4 0		MILL
			M I N E		
			Surface	Underground	
January .....	1,459	1,388	256	685	281
February .....	1,422	1,354	264	682	284
March .....	1,403	1,349	255	689	284
April .....	1,372	1,385	290	713	299
May .....	1,361	1,412	333	793	349
June .....	1,411	1,381	316	749	299
July .....	1,426	1,373	316	773	308
August .....	1,399	1,383	320	777	326
September .....	1,393	1,357	316	750	324
October .....	1,377	1,330	314	733	317
November .....	1,357	1,329	332	697	326
December .....	1,366	1,320	317	712	330
AVERAGE .....	1,403	1,375	306	726	309

Table 15 - NUMBER OF WAGE-EARNERS WHO WORKED THE NUMBER OF HOURS SPECIFIED, DURING ONE WEEK IN MONTH OF NORMAL EMPLOYMENT

Hours	1 9 4 0	Hours	1 9 4 0
	No.		No.
30 hours or less .....	1	51 - 54 hours .....	14
31 - 43 hours .....	11	55 hours .....	...
44 hours .....	...	56 - 64 hours .....	371
45 - 47 hours .....	...	65 hours and over .....	17
48 hours .....	1,213	GRAND TOTAL .....	1,627
49 - 50 hours .....	...	Total wages paid in that week ... \$	58,560

Table 16 - FUEL AND ELECTRICITY USED IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1939 and 1940

	Unit of measure	1 9 3 9		1 9 4 0	
		Quantity	Value	Quantity	Value
			\$		\$
Bituminous coal - Canadian .....	short ton	41,665	130,942	33,800	140,125
Imported .....	short ton	8	283	...	...
Lignite coal .....	short ton	40	247	241	1,323
Coke .....	short ton	1	30	...	...
Gasoline .....	Imp. gal.	74,341	34,157	35,061	14,781
Kerosene .....	Imp. gal.	18,356	2,776	415	153
Fuel oil and diesel oil .....	Imp. gal.	527,229	204,024	517,975	108,552
Wood (cords of 128 cu. ft.) .....	cord	1,703	20,740	591	7,062
Other fuel .....	\$	...	6	...	98
Electricity purchased, including service charges .....	K.W.H.	58,135,808	274,456	43,817,835	196,063
TOTAL .....	\$	...	667,661	...	463,157
Electricity generated for own use .....	K.W.H.	6,287,406	...	11,310,245	...
Process supplies used, explosives, etc.	\$	...	1,619,385	...	799,289

Table 17 - POWER EQUIPMENT INSTALLATION IN THE SILVER-LEAD-ZINC MINING INDUSTRY, 1940

Description	Ordinarily in use		In reserve or idle	
	Number of units	Total horse power (x)	Number of units	Total horse power (x)
Steam engines and steam turbines .....	1	142	3	6,000
Diesel engines .....	35	4,985	7	607
Gasoline, gas and oil engines, other than diesel engines .....	5	61	...	...
Hydraulic turbines or water wheels .....	3	700	9	1,050
Electric motors - (a) Operated by purchased power .....	679	18,440	54	2,950
TOTAL .....	723	24,328	73	10,607
(b) Operated by power generated by the establishment .....	314	5,331	27	312
Stationary boilers .....	11	2,286	4	300

(x) According to manufacturers' rating.

Table 18 - ORE MINED AND MILLED IN THE SILVER-LEAD-ZINC MINING INDUSTRY (x) IN CANADA, 1938 and 1939

		Yukon and Northwest Territories	British Columbia, Quebec and Nova Scotia (a) (b)	CANADA
1938 - Ore mined .....	tons	89,131	2,298,036	2,387,167
Ore milled .....	tons	88,123	2,275,900	2,364,023
Concentrates produced - Lead .....	tons	...	281,009	281,009
Zinc .....	tons	...	233,071	233,071
Pitchblende-silver..	tons	714	...	714
Silver-copper .....	tons	94	...	94
1939 - Ore mined .....	tons	86,748	2,108,390	2,195,138
Ore milled .....	tons	94,278	2,091,964	2,186,242
Concentrates produced - Lead .....	tons	6,451	260,771	267,222
Zinc .....	tons	...	219,637	219,637
Pitchblende-silver..	tons	1,042	...	1,042
Silver-copper .....	tons	16	...	16

(x) Includes silver-pitchblende ores mined in Northwest Territories.

(a) Includes data relating to 1 property in Ontario in 1939 and 1940.

(b) No ore mined or milled in Quebec and Nova Scotia in 1938, 1939 or 1940.

NOTE: FIGURES FOR 1940 ARE NOT BEING PUBLISHED.



Table 19 - DESTINATION OF SHIPMENTS FROM SILVER LEAD-ZINC MINES OF CANADA, 1939

	Tons shipped	Gross value at shipping point	Total metal content as determined by settlement assay:			
			Gold fine oz.	Silver fine oz.	Lead pounds	Zinc pounds
To Canadian smelters -						
Lead ore .....	8,442	455,524	557	914,868	1,142,053	224,041
Lead concentrates (a) ...	253,922	11,785,446	802	7,060,903	354,645,593	19,151,082
Zinc concentrates (x) ...	254,988	3,962,225	1	560,863	16,653,058	256,944,312
Dry ore .....	4,853	179,864	1,735	294,889	52,985	53,769
TOTAL .....	522,205	16,383,059	3,095	8,831,523	372,493,689	276,373,204
To Foreign smelters -						
Lead ore .....	792	181,370	74	441,310	673,542	...
Lead concentrates .....	13,158	1,446,029	2,825	3,628,720	9,947,252	1,226,668
Silver concentrates (b) ..	99	30,349	...	66,610	...	...
Zinc concentrates (x) ...	15,905	214,044	...	11,035	298,466	16,405,808
Dry ore .....	...	...	...	...	...	...
TOTAL .....	29,954	1,871,792	2,899	4,147,675	10,919,260	17,632,476
GRAND TOTAL (Gross) .....	552,159	18,254,851	5,994	12,979,198	383,412,949	294,005,680
Cost of freight .....	...	1,417,437	...	...	...	...
Cost of fuel and purchased electricity .....	...	667,661	...	...	...	...
Smelter charges .....	...	994,759	...	...	...	...
Cost of process supplies..	...	1,619,385	...	...	...	...
NET VALUE .....	...	13,555,609	...	...	...	...

(x) Does not include any zinc concentrates produced from copper-gold-zinc ores in Quebec, Manitoba, Saskatchewan or British Columbia.

(a) Includes shipments of silver-pitchblende concentrates from Northwest Territories. Information relating to content of pitchblende is not available for publication.

(b) Recovered from pitchblende-silver ores. In 1939 these concentrates shipped to Foreign smelters contained 43,372 pounds of copper.

**NOTE:** In addition to the metals contained in shipments listed in Table 19, there are considerable quantities of lead and silver contained in ores shipped from certain gold mines in British Columbia. Cadmium, bismuth, antimony and sulphur are also recovered from these ores (silver-lead-zinc).

FIGURES FOR 1940 ARE NOT BEING PUBLISHED.

**SILVER** - Production of newly mined silver in Canada in 1940 totalled 23,833,752 fine ounces valued at \$9,116,172 compared with 23,163,629 fine ounces at \$9,378,490 in 1939. The average price of the metal in Canadian funds was 38.249 cents per fine ounce in 1940 as against 40.488 cents in 1939. The greatest annual production of silver in Canada was in 1910 in which year an output of 32,869,264 fine ounces was recorded; the highest average yearly price per fine ounce for the metal in Canada was 111.122 cents in 1919. Production of silver in Canada since 1887, the first year for which data are available, to the close of 1940 totalled 807,498,741 fine ounces valued at \$463,807,309.

The following is, in part, from the Review of the 1940 Silver Market by Handy and Harman, New York:

"Towards the end of 1939 restrictions against the importation of silver into England and India isolated the silver markets of those countries from the rest of the world, thereby creating two silver markets. Throughout 1940 these two markets have continued to function separately--the world market, dependent for the most part upon the United States buying rate and typified by New York quotations, and the Anglo-Indian market, influenced chiefly by bazaar operations and represented by prices in pence and rupees.

"The world market was a wholly colorless affair. For the entire year the Treasury Department maintained its rate at 35 cents, with the result that the New York "official" did not vary from 34 3/4 cents except for two short periods in May and June when the easing of Indian restrictions caused a moderate advance in price. The high quotation for the year was 35 5/8 cents, attained on May 28th and 29th. During the first half of 1940 another unsuccessful attempt was made in Congress to bring about repeal of the authority for Government purchases of foreign silver, but this effort had no depressing effect upon world

prices such as resulted from the previous year's endeavour. ....We estimate world silver production at 278,000,000 ounces, apportioned as follows: United States, 66,000,000 ounces; Mexico, 84,500,000 ounces; Canada, 25,000,000 ounces; South America, 32,500,000 ounces; all other countries, 70,000,000 ounces. ....The year 1940 created a new record for the use of silver by the arts and industries in the United States and Canada. We estimate the amount at 41,000,000 ounces, an increase of more than 20 per cent over the preceding year. In the arts the consumption figures showed the following approximate percentage changes compared with 1939: sterling silverware, 30% increase; silver-plated ware, 5% decrease; jewelry, 10% increase. In the dental trade there was a decrease of 10%. In the purely industrial field, as distinct from the arts, larger quantities of silver were consumed except in the case of chemical salts where the amount remained practically unchanged. There was continued expansion in plating for non-silverware purposes, in the manufacture of electrical contacts and alloys for soldering and brazing, and in the construction of chemical equipment. Also there has been considerable use of silver of various compositions in shipbuilding for our navy and in the production of airplanes, guns and other equipment for national defense. ....At the close of the year there was nothing to indicate any change in the United States silver-buying program or in the price the United States' Government will pay".

Table 20 - PRODUCTION OF SILVER IN CANADA, BY PROVINCES AND BY SOURCES, 1939 and 1940

	1939		1940	
	Quantity	Value \$	Quantity	Value \$
<u>NOVA SCOTIA</u> -				
In gold bullion and in silver-lead-zinc ores exported(*) .....	Total	173,877	70,399	725 277
<u>QUEBEC</u> -				
In anode copper .....	943,403	381,965	1,168,316	446,869
In gold ores, and in copper and zinc concentrates exported .....	224,041	90,710	172,154	65,840
Total .....	1,167,444	472,675	1,340,450	512,709
<u>ONTARIO</u> -				
In silver bullion made in Canada from cobalt ores.	1,465,920	593,522	1,127,219	431,150
In gold bullion .....	527,352	213,514	572,470	218,964
In blister copper .....	2,410,512	975,968	2,707,667	1,035,656
In ores, concentrates, residues, matte, etc. exported or treated in smelters outside the province	285,638	115,649	1,155,745	442,061
Total .....	4,689,422	1,898,653	5,563,101	2,127,831
<u>MANITOBA</u> -				
In blister copper .....	984,992	398,804	1,022,180	390,974
In gold bullion (gold mines) .....	43,493	17,609	11,332	4,334
Total .....	1,028,485	416,413	1,033,512	395,308
<u>SASKATCHEWAN</u> -				
In blister copper (a) .....	1,139,348	461,299	1,685,393	644,646
In gold bullion and in crude alluvial gold .....	2,252	912	6,147	2,351
Total .....	1,141,600	462,211	1,691,540	646,997
<u>ALBERTA</u> -				
In alluvial gold .....	Total	32 13	20 8	
<u>BRITISH COLUMBIA</u> -				
In alluvial gold .....	9,000	3,644	6,939	2,654
In gold bullion .....	94,805	38,385	96,977	37,093
In base bullion; and in ores, matte, etc. exported	10,544,226	4,269,146	11,781,640	4,506,359
Total .....	10,648,031	4,311,175	11,885,556	4,546,106
<u>YUKON</u> -				
In alluvial gold .....	19,254	7,795	17,979	6,877
In silver-lead ores shipped to smelter .....	5,811,610(b)	1,543,245	2,241,364(d)	857,299
Total .....	3,830,864	1,551,040	2,259,343	864,176
<u>NORTHWEST TERRITORIES</u> -				
In pitchblende-silver ores shipped to smelters(x) and in gold bullion .....	Total	483,874 195,911	59,505 22,760	
CANADA - TOTAL .....	23,163,629(c)	9,378,490	23,833,752	9,116,172

For Footnotes, see Page 13.



## FOOTNOTES to Table 20

- (\*) Silver-lead ores exported in 1939 only.  
 (x) Comprises silver in silver sulphide, etc., made at the Eldorado refinery, Port Hope, Ont., plus silver in ores shipped to other metallurgical plants.  
 (a) Represents silver contained in blister copper made at the Flin Flon smelter from Saskatchewan ores.  
 (b) Includes 300 ounces from gold ores.  
 (c) Of this, 5,961,172 fine ounces represents silver in ores exported.  
 (d) Includes 160 ounces in gold concentrates exported.

NOTE: For 1940 silver was valued at 38.25 cents per fine ounce, the average price of the metal on the New York market expressed in Canadian funds; for 1939 the corresponding price was 40.488 cents.

Table 21 - IMPORTS INTO CANADA AND EXPORTS OF SILVER, 1939 and 1940

	1 9 3 9		1 9 4 0	
	Quantity	Value	Quantity	Value
		\$		\$
<b>IMPORTS -</b>				
Silver in bars, etc., unmanufactured .....	3,850,851	1,532,891	1,354,914	519,247
Silver, manufactures of, n.o.p., and articles consisting wholly or in part of sterling, and other silverware .....	...	278,521	...	309,464
Toilet articles of which the most important component, in value, is sterling silver .....	...	25,907	...	22,583
Total .....	...	1,837,319	...	851,294
<b>EXPORTS -</b>				
Silver contained in ore, concentrates, etc. ....	6,828,031	2,801,206	5,633,106	2,052,298
Silver bullion (Canadian) .....	14,202,549	5,723,967	13,612,952	5,113,206
Total .....	21,030,580	8,525,173	19,246,058	7,165,504
Silver bullion--Foreign .....	1,008,612	427,046	401,333	154,513
Silver coin--Foreign (subsidiary) .....	...	1,200,392	...	438,617
Canadian .....	...	5,340	...	2,590

Table 22 - FINE GOLD AND FINE SILVER CONTENT OF SHIPMENTS TO THE ROYAL CANADIAN MINT, OTTAWA, CANADA, BY SOURCES, 1940

	Gold	Silver
	Fine ounces	Fine ounces
Northwest Territories .....	52,617.826	11,527.56
British Columbia .....	312,170.322	86,642.91
Alberta sundries .....	2.906	0.26
Saskatchewan .....	20,652.568	6,161.91
Manitoba .....	76,881.493	11,344.61
Ontario .....	3,202,643.539	425,219.47
Quebec .....	1,109,137.122	130,119.33
Nova Scotia .....	22,218.895	724.62
Jewellery and scrap .....	10,641.602	2,805.34
Vancouver Assay Office .....	178,795.556	32,353.30
Yukon sundries .....	1,274.317	281.61
Other - Foreign gold coin .....	14.040	...
Foreign ore .....	4,739.433	1,376.03
TOTAL .....	4,990,845.179	708,556.95

## Silver

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Table 23 - PRODUCTION OF SILVER IN CANADA FOR YEARS SPECIFIED, 1887 - 1940

Year	Ounces	Cents per ounce	Year	Ounces	Cents per ounce
1887 .....	355,033	98.00	1929 .....	23,143,261	52.99
1891 .....	414,525	98.00	1930 .....	26,443,823	38.15
1896 .....	3,205,545	87.06	1931 .....	20,562,247	29.87
1901 .....	5,539,192	58.95	1932 .....	18,347,907	31.67
1906 .....	8,473,379	66.79	1933 .....	15,137,950	37.83
1910 (x) .....	32,869,364	53.43	1934 .....	16,415,232	47.46
1911 .....	32,559,044	53.30	1935 .....	16,618,553	64.79
1916 .....	25,459,741	65.66	1936 .....	18,334,437	45.13
1919 .....	16,020,657	111.122(a)	1937 .....	22,977,751	44.88
1920 .....	13,330,557	100.90	1938 .....	22,219,195	43.48
1925 .....	20,228,938	69.06	1939 .....	23,163,629	40.49
1927 .....	22,736,698	56.37	1940 .....	23,833,752	38.25

(x) Year of maximum output.

(a) Highest price per ounce recorded since 1887.

Table 24 - SOURCE OF CANADIAN SILVER PRODUCTION, BY PERCENTAGES, 1937 - 1940

Source	1937	1938	1939	1940
In silver-cobalt ores .....	7.9	5.7	6.5	5.33
In base bullion (A) .....	41.7	45.7(*)	39.7(*)	44.39
In gold ores (bullion and placer) .....	7.3	3.8	4.6	3.60
In blister and anode copper .....	20.5	24.6	23.6	27.62
In matte, copper ores and silver-lead ores, etc., exported (other than silver-cobalt ores) .....	22.1	20.2	25.6	19.01
	100.0	100.0	100.0	100.0

(A) Chiefly from silver-lead ores.

(\*) Includes silver recovered in Canada from pitchblende-silver ores.

Table 25 - SILVER CONSUMED IN SPECIFIED CANADIAN INDUSTRIES, 1938 and 1939

	1938		1939	
	Fine oz.	Value \$	Fine oz.	Value \$
Scientific equipment .....	696,437	310,703	562,158	241,542
Fountain pens and pencils .....	...	505,038	...	644,750
Jewellery and silverware (fine silver) .....	...	361,555	...	400,947
Jewellery and silverware (silver alloys) .....	45,283	20,241	45,456	18,914
Medicinal and pharmaceutical preparations (bullion)	13,089	5,759	10,067	4,027
Miscellaneous chemicals .....				

(a) Consumed largely in the manufacture of photographic film.

Table 26 - AVERAGE COMMERCIAL RATIO OF SILVER TO GOLD FOR EACH SPECIFIED YEAR SINCE 1700  
(Supplied by United States Mint)

(Expressed in United States dollars)					
Year		Year		Year	
1700 .....	14.31	1900 .....	33.33	1933 .....	59.06
1750 .....	14.55	1905 .....	33.87	1934 .....	72.49
1800 .....	15.68	1910 .....	38.22	1935 .....	54.19
1850 .....	15.70	1915 .....	40.49	1936 .....	77.09
1875 .....	16.64	1920 .....	20.29	1937 .....	77.44
1880 .....	18.05	1925 .....	29.78	1938 .....	80.39
1885 .....	19.41	1930 .....	53.74	1939 .....	88.34
1890 .....	19.75	1931 .....	71.25	1940 .....	100.65(x)
1895 .....	31.60	1932 .....	73.29		

(x) Estimated on averages in Canadian funds.



Table 27 - SILVER PRODUCTION OF THE WORLD(a) - (Taken from the Year Book of the American Bureau of Metal Statistics) - (In fine ounces)

	1 9 3 4	1 9 3 9	1 9 4 0
<b>NORTH AMERICA:</b>			
United States .....	26,441,000	57,808,000	67,013,000
Canada .....	16,415,282	23,163,629	23,815,715
Mexico .....	74,143,301	75,868,824	82,638,167
Newfoundland .....	1,103,091	1,421,060	1,545,000
Total North America .....	118,102,674	158,261,513	175,011,882
<b>CENTRAL AMERICA AND WEST INDIES .....</b>	<b>3,500,000</b>	<b>4,625,000</b>	<b>4,500,000</b>
<b>SOUTH AMERICA:</b>			
Argentina .....	(c)	3,929,501	3,242,200
Bolivia .....	5,216,297	7,241,376	5,626,250
Chile .....	1,051,112	1,174,024	1,686,000
Colombia .....	127,461	242,609	269,000
Ecuador .....	110,815	103,331	105,000
Peru .....	10,366,929	18,802,226	19,000,000
Other South America .....	95,000	50,000	50,000
Total South America .....	16,967,614	31,543,067	29,978,450
<b>EUROPE:</b>			
Czechoslovakia .....	971,338	* 1,000,000	
France .....	303,978	* 565,000	
Great Britain .....	133,974	70,818	
Germany .....	5,944,535	* 7,000,000	
Greece .....	256,000	150,000	
Italy .....	365,600	880,000	
Norway .....	177,339	300,000	
Poland .....	21,155	* 60,000	
Rumania .....	417,661	712,714	
Russia .....	2,895,000	* 7,000,000	
Spain and Portugal .....	1,788,289	* 500,000	
Sweden .....	754,496	1,122,839	
Yugoslavia .....	1,748,000	2,293,634	
Other Europe .....	40,000	150,000	
Total Europe .....	15,822,365	21,835,005	*22,000,000
<b>OCEANIA:</b>			
New South Wales .....	8,207,520	* 9,500,000	(e)
Queensland .....	2,259,574	3,885,963	(e)
Tasmania .....	284,687	1,278,116	(e)
Western Australia .....	61,384	287,439	285,000
New Guinea .....	(b)	175,015	170,000
New Zealand .....	382,615	390,342	418,500
Other Oceania .....	76,742	20,000	21,500
Total Oceania .....	11,272,528	15,536,875	15,600,000
<b>ASIA:</b>			
India (f) .....	6,850,000	6,830,000	
China .....	147,600	* 150,000	
Chosen (Korea) .....	1,005,883	* 3,000,000	
Netherland India .....	773,998	618,026	
Cyprus .....	128,264	103,970	
Japan .....	6,984,748	* 11,000,000	
Turkey .....	250,000	575,000	
Other countries .....	19,700	110,000	
Total Asia .....	16,160,193	22,386,996	*22,000,000

Table 27 - SILVER PRODUCTION OF THE WORLD(a) - (Taken from the Year Book of the American Bureau of Metal Statistics) - (In fine ounces) - Concluded

	1 9 3 4	1 9 3 9	1 9 4 0
<b>AFRICA:</b>			
Algeria .....	1,929	85,000	(e)
Nigeria .....	81,000	...	(e)
Rhodesia .....	128,588	253,623	266,000
Transvaal, Cape Colony and Natal .....	1,002,203	1,182,516	1,292,000
Belgian Congo .....	3,299,541	2,085,000	(e)
French Morocco .....	(d)	* 300,000	(e)
Southwest Africa .....	...	587,000	460,000
Tunis .....	(d)	60,000	(e)
Other Africa .....	50,000	65,000	(e)
Total Africa .....	4,663,241	4,618,209	4,600,000
<b>TOTAL FOR WORLD .....</b>	<b>186,488,619</b>	<b>258,776,665</b>	<b>273,630,300</b>

(a) In compiling this table free use has been made of the reports of the Director of the Mint, especially for early years. The 1940 compilation contains some preliminary data and conjectural figures (\*) have been inserted where necessary. Production of the Philippine Islands is included with the United States in this table.

(b) Included in "Other Oceania".

(c) Included in "Other South America".

(d) Included in "Other Africa".

(e) Not reported; estimate has been included in total.

(f) Including Burma.

Table 28 - WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1938 and 1939. (Supplied by the United States Mint and subject to revision. Stated in United States money, 000's omitted)

Country	1 9 3 8		1 9 3 9	
	Silver stock in banks and treasuries(x)	Per capita	Silver stock in banks and treasuries(x)	Per capita
	\$	\$	\$	\$
United States (including Hawaii, Alaska and Porto Rico) .....	5,367,771	41.07	2,860,082	21.59
Canada (1) .....	30,483	2.72	28,245	2.54
Mexico (10) .....	54,409	2.79	55,718	2.91
Cuba (2)(3) .....	69,394	16.52	77,440	18.25
Chile (2)(4) .....	334	0.07	412	0.09
Colombia .....	11,379	1.32	9,483	1.09
Peru .....	4,646	0.65	4,620	0.71
Venezuela (4) .....	38,139	10.80	15,225	4.44
Uruguay .....	3,127	1.48	1,828	0.89
Belgium .....	5,791	0.69	7,070	0.85
France (3)(4) .....	79,074	1.88	(11)16,088	0.38
Germany (10) .....	511,770	6.50	549,939	8.14
Bulgaria (2)(12) .....	22,875	3.59	22,510	3.61
Czechoslovakia .....	...	...	...	...
Denmark .....	...	...	...	...
Hungary .....	2,696	0.27	4,614	0.51
Lithuania .....	6,500	2.52	6,681	2.62
Great Britain .....	280,218	5.90	...	...
Greece .....	2,610	0.37	1,098	0.15
Eire (8) .....	4,737	1.61	6,989	2.36
Latvia (4) .....	7,958	4.02	1,111	0.56
Netherlands .....	90,677	10.39	5,842	0.68
Norway .....	1,642	0.56	5,664	...
Poland .....	72,803	2.07	...	...
Rumania (2)(3) .....	34,912	1.76	15,926	0.81
Spain .....	...	...	...	...
Switzerland (3) .....	45,274	10.75	(13) 574	...
Italy .....	...	...	...	...



Table 28 - WORLD'S MONETARY STOCKS OF SILVER AT THE CLOSE OF 1938 and 1939 (Supplied by the United States Mint and subject to revision. Stated in United States money, 000's omitted) - Concluded

Country	1938		1939	
	Silver stock in banks and treasuries(x)	Per capita	Silver stock in banks and treasuries(x)	Per capita
	\$	\$	\$	\$
Portugal .....	...	...	...	...
Sweden (4) .....	218	0.03	217	...
Yugoslavia (3) .....	22,143	1.42	22,329	1.45
British Malaya .....	15,305	2.54	12,981	2.15
Indo-China--French .....	5,951	0.26	5,054	0.22
Iran (Persia) (4)(5) .....	25,548	1.57	27,090	2.26
Palestine .....	5,184	3.61	5,541	3.95
Syria .....	1,185	0.33	(14)	(14)
Turkey .....	...	...	...	...
British West Africa .....	7,005	0.28	10	...
Nyasaland .....	5,345	3.26	4,342	2.65
Rhodesia, Southern (4) .....	801	0.61	382	0.50
New Zealand (6) .....	8,784	5.48	7,555	4.72
Ceylon .....	9,639	1.67	8,334	1.44
China .....	...	...	...	...
India--British (4) .....	254,063	0.71	192,793	0.57
Morocco .....	1,952	0.27	2,752	0.44
Japan, (including Chosen, Taiwan, Kwantung and Karafuto) .....	...	...	...	...
Netherlands East Indies (10) .....	51,857	0.77	49,192	0.76
Philippine Islands (7) (10) .....	19,009	1.39	18,973	1.45
Thailand (Siam) (10) .....	30,492	2.08	6,705	0.46
Egypt .....	19,454	1.21	(3) 16,376	1.03
Kenya, Uganda, Tanganyika and Zanzibar (9) .....	16,591	1.33	15,033	1.21
Sudan--Anglo Egyptian .....	7,380	1.19	(12) 7,503	1.26
Union of South Africa .....	16,052	1.62	(4) 4,441	0.45
Australia (June 30, 1938) .....	38,862	5.61	...	...
Algeria and Tunis .....	3,156	0.31	...	...
Other countries .....	139,182	...	17,096	...
TOTAL .....	7,452,377	3.61	4,121,858	2.02

(x) Monetary silver stock in government treasuries, in banks, and when data available, in circulation.  
United States equivalent of reported face value at exchange rates.

- (1) Net issues of silver coin.
- (2) Includes base metal coin.
- (3) Prior year's figures at new equivalents where equivalents other than the legal parity are applicable.
- (4) Silver in circulation not included.
- (5) As of November 21, 1939.
- (6) Australian coins and notes are the circulating media.
- (7) Silver converted to United States equivalent at legal rate.
- (8) Exclusive of British coins and currency which still circulate in the Irish Free State.
- (9) On June 30, 1939.
- (10) Includes silver bullion.
- (11) On December 7, 1939.
- (12) At average exchange rate for 1939.
- (13) Silver coins in central banks only.
- (14) Data not available.

**LEAD AND ZINC** - The mines of British Columbia account for a large part of Canada's lead output the Sullivan mine owned by the Consolidated Mining & Smelting Company Ltd. being by far the largest producer.

O. W. Roskell, in the Mining Journal, London, comments on lead and zinc in 1940 as follows:

"Except for those in the United Kingdom, all the European lead and zinc producers are virtually under Axis control. Spain, Sweden and Finland might still be regarded as exceptions, but the two latter countries are of little importance. One result of the domination of Europe has been a solution--of sorts--of the problem of the custom smelters in Belgium, Holland and Norway, to which attention was drawn in the

review for 1939. Though the Belgians, in particular, had substantial stocks, by her invasion Germany has ensured that they will in future obtain only those concentrates which she herself can supply or which can, should she think it worthwhile, be railed across Europe to them. The virtual elimination from world trade of an important part of the total smelting capacity nevertheless left the question of over-production of concentrates virtually untouched. Towards the end of the year, however, there were signs that this difficulty was also becoming resolved. In 1940 about 20 per cent of the world lead production (1.7 million tons—world output) was accounted for by the Axis or countries under Axis control. Lead consumption was placed at 1.75 million tons in 1940 as against rather under 1.64 million tons in 1938, the corresponding figure for the Axis in 1940 being about 25 per cent. Zinc production in 1940 was estimated at slightly under 1.65 million tons, the Axis powers producing rather over 30 per cent and consuming slightly under 30 per cent of the total world consumption of about 1.2 million tons. The maximum prices for lead and zinc in the U.K. have been officially fixed".

Canada's zinc production includes zinc in ores exported in concentrates from the Stirling mine, Nova Scotia; zinc in concentrates made from the copper-gold-silver ores of northwestern Quebec; refined zinc made from the ores of the Flin Flon mine on the Manitoba-Saskatchewan boundary; zinc in concentrates exported by mines in British Columbia, and refined zinc made at Trail, B.C. by the Consolidated Mining & Smelting Company of Canada Ltd. Owing to the increased demand for zinc as a war material, interest in the construction of a zinc refinery in Eastern Canada was revived in 1940 and the zinc situation was closely studied by officials investigating or supervising the nation's war effort.

## LEAD

Table 29 - PRODUCTION(b) OF NEW LEAD IN CANADA, 1925 - 1940

Year	Pounds	\$	Price per pound (Canadian funds)
			\$
1925 (x) .....	253,590,578	23,127,460	9.120
1926 .....	283,801,265	19,240,661	6.751
1927 .....	311,423,161	16,477,139	5.256
1928 .....	337,946,688	15,553,231	4.576
1929 .....	328,522,566	16,544,248	5.054
1930 .....	332,894,163	13,102,635	3.927
1931 .....	267,342,482	7,260,183	2.710
1932 .....	255,947,378	5,409,704	2.114
1933 .....	266,475,191	6,372,998	2.392
1934 .....	346,275,576	8,436,858	2.436
1935 .....	339,105,079	10,624,772	3.133
1936 .....	383,180,909	14,993,869	3.913
1937 .....	411,939,434	21,053,173	5.110
1938 .....	418,927,680	14,009,941	3.344
1939 .....	338,569,550	12,313,769	3.169
1940 (a) .....	(c)	(c)	3.362

(x) Year of maximum value of Canadian lead production.

(a) Year of maximum output of Canadian lead.

(b) Primary lead in base bullion produced plus lead in ores exported.

(c) Data not published.

Table 30 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF LEAD, 1939

	Pounds	Value
		\$
<b>PRODUCTION -</b>		
Nova Scotia .....	2,545,122	80,655
Ontario .....	39,130	1,240
British Columbia .....	378,440,666	11,992,784
Yukon .....	7,544,632	239,089
TOTAL .....	388,569,550	12,313,769
<b>IMPORTS -</b>		
Old and scrap, pig and block .....	16,846	1,822
Bars and sheets .....	88,092	5,442
Litharge .....	2,253,300	154,898
Acetate of lead .....	164,717	10,469

Table 30 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF LEAD, 1939

	Pounds	Value
		\$
<u>IMPORTS (Concluded) -</u>		
Nitrate of lead .....	286,801	20,860
Other manufactures .....	...	80,338
Pipe lead .....	69,525	3,798
Shots and bullets .....	11,726	974
Lead arsenate .....	568,344	49,238
Lead tetraethyl, compounds of .....	6,373,494	2,927,449
Lead capsules for bottles .....	...	78,652
Lead pigments -		
Dry white lead .....	8,324	701
White lead, ground in oil .....	14,769	1,562
Dry red lead and orange mineral .....	450,885	31,619
TOTAL .....	...	3,367,822
<u>EXPORTS -</u>		
Lead, contained in ore .....	8,204,200	399,811
Pig lead, refined lead, etc. ....	361,471,700	9,450,265
White lead .....	258,700	20,931
TOTAL .....	369,932,600	9,871,007

NOTE: CORRESPONDING DATA FOR 1940 NOT PUBLISHED.

Production of lead from all types of Canadian ores from 1887 to 1939 inclusive, totalled 6,374,120,797 pounds valued at \$289,504,432.

Table 31 - PRODUCTION OF REFINED LEAD(x) IN CANADA, 1931 - 1939

Pounds	Pounds	Year	Pounds
1931 .....	278,448,457	1936 .....	363,449,490
1932 .....	253,136,522	1937 .....	399,394,939
1933 .....	254,565,861	1938 .....	400,763,914
1934 .....	314,457,735	1939 .....	381,137,424
1935 .....	327,515,277		

(x) Primary lead only from 1934 to 1939, inclusive.

Table 32 - AVAILABLE STATISTICS ON THE CONSUMPTION OF LEAD IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1938 and 1939

Industries	Items Used	1938	1939
		Pounds	Pounds
Brass and copper products .....	Pig lead .....	712,315	750,208
	Scrap and other lead ...	468,372	363,129
Paints and pigments .....	Pig lead (*) .....	13,720,025	17,949,541
White metal alloys .....	Pig lead .....	11,875,116	15,579,136
	Scrap lead .....	12,230,944	11,967,402
Electrical apparatus .....	Pig lead .....	21,467,082	23,118,853
	Scrap lead .....	154,125	237,026
	Other .....	874,760	2,150,838
Iron and steel .....	Lead .....	1,306,444	1,634,429
Explosives .....	Pig lead .....	794,098	800,831
GRAND TOTAL .....		63,605,281	72,551,443

(\*) Some products such as lead oxides made from pig lead by the paints and pigments industry are sold to other industries for the manufacture of such products as storage batteries.

NOTE: Corresponding data for 1940 not yet complete.



Table 33 - USE OF LEAD IN THE UNITED STATES, BY PERCENTAGE, 1929, and 1938 - 1940

NOTE: The following data supplied by the American Bureau of Metal Statistics are included as indicative of current trends in lead consumption.

Purpose	1929	1938	1939	1940
Ammunition .....	4.25	5.71	6.34	7.16
White lead .....	12.31	13.00	11.24	8.38
Red lead and litharge .....	3.09	7.37	8.58	7.53
Storage batteries .....	21.60	30.59	29.69	28.16
Cable covering .....	22.63	10.39	11.15	13.73
Building .....	9.37	6.59	7.50	8.31
Automobiles .....	1.95	1.10	1.33	1.41
Foil .....	4.09	4.03	3.27	3.00
Bearing metal .....	3.39	1.65	1.32	1.79
Solder .....	3.31	2.75	3.00	3.07
Typemetal .....	1.35	2.20	2.10	2.15
Caulking .....	3.24	2.20	2.40	2.46
Other uses .....	8.04	11.32	11.48	12.79
TOTAL .....	100.00	100.00	100.00	100.00

Table 34 - WORLD'S PRODUCTION OF LEAD(a), 1933 - 1938 and 1939 (Supplied by the American Bureau of Metal Statistics)

Country	1933	1938	1939
United States (c) .....	265,395	344,406	381,411
Canada (b) .....	117,874	185,655	177,365
Mexico .....	126,770	242,703	215,680
Other North America (d) .....	...	1,307	2,876
Total North America .....	510,039	774,571	777,632
Argentina .....	9,995)		
Peru (b) .....	680)	45,814	45,904
Other South America (b) .....	771)		
Total South America .....	11,446	45,814	45,904
Austria .....	4,625	9,280	(f)
Belgium .....	63,996	90,500	96,000
Czechoslovakia .....	3,716	* 5,000	* 5,000
France .....	7,800	41,753	42,000
Germany .....	116,600	171,700	181,440
Great Britain .....	6,350	11,000	* 11,000
Greece .....	8,100	3,980	3,831
Italy .....	24,756	43,310	38,102
Yugoslavia .....	6,028	8,718	10,624
Poland .....	12,080	21,783	* 25,000
Rumania .....	(e)	5,655	5,100
Russia .....	13,671	* 69,000	* 75,000
Spain .....	32,963	* 36,000	27,000
Other Europe .....	6,000	* 300	* 300
Total Europe .....	366,685	517,973	520,397
Turkey .....	...	1,006	366
India (Burma) .....	73,206	81,387	73,623
Japan .....	6,824	* 12,000	* 12,000
Chosen .....	784	* 10,000	* 10,000
China .....	3,844	* 2,000	* 2,000
Total Asia .....	84,658	106,393	102,989
Australia .....	211,860	235,664	252,383
Africa .....	14,373	23,776	23,421
TOTALS, ex U.S.A. ....	934,166	1,359,791	1,341,315
GRAND TOTALS .....	1,199,561	1,704,197	1,722,726

NOTE: For Footnotes, see Page 21.

## Footnotes to Table 34

- (a) In this accounting production is reported in terms of lead content of base bullion and refined lead according to the countries where the smelting is done, except that in respect of the U.S.A., in view of its special tariff conditions, lead derived from foreign ore is deducted from domestic smelting production and credited to the respective countries of origin.
- (b) Does not include lead in ore exported to European countries.
- (c) Lead in smelters' original production from domestic ore, inclusive of some secondary.
- (d) Production of Newfoundland for 1933 included in Belgium and Germany. Beginning 1931, part was treated in United States and reported separately.
- (e) Included in "Other Europe."
- (f) Included in Germany.

The United States Bureau of Mines reported that as a result of the war little lead was sent from Mexico to European countries, whereas in previous recent years considerably more than half of the total was shipped there. Much of the lead formerly exported to Europe has been diverted to the United States, which received 123,673 tons of metal from Mexico in 1940 compared with 294 tons in 1933 and none in 1938. Average prices for lead in the United States fluctuated less during 1940 than those for the other common non-ferrous metals. The average monthly quoted price for pig lead at New York, outside market, was 5.47 cents a pound in January and 5.50 throughout December. The average price for 1940 was 5.18 cents compared with 5.05 cents in 1939 and 4.74 cents in 1938.

## ZINC

Table 35 - PRODUCTION(x) OF ZINC FROM CANADIAN ORES, 1929 - 1940

Year	Pounds	\$	Price per pound (Canadian funds)
			¢
1929 .....	137,267,087	10,626,778	5.39
1930 .....	267,643,505	9,635,166	3.60
1931 .....	237,245,451	6,059,249	2.55
1932 .....	172,283,558	4,144,454	2.41
1933 .....	199,131,984	6,393,132	3.21
1934 .....	298,579,683	9,087,571	3.04
1935 .....	320,649,859	9,936,908	3.10
1936 .....	333,182,736	11,045,007	3.31
1937 (b) .....	370,337,589	18,153,949	4.90
1938 .....	381,506,588	11,723,698	3.07
1939 .....	394,533,860	12,108,244	3.07
1940 (a) .....	(c)	(c)	3.411

(x) Includes refined zinc and zinc in ores, etc., exported.

(a) Year of maximum Canadian zinc production.

(b) Year of highest annual value.

(c) Data not published.

The total value of Canadian zinc production since the first recording of Canadian zinc statistics in 1898, and inclusive of 1939, totalled \$180,684,662.

Table 36 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ZINC, 1939

	Pounds	Value
<u>PRODUCTION -</u>		↓
Nova Scotia .....	9,152,856	280,901
Quebec .....	28,756,759	882,606
Ontario .....	...	...
Manitoba .....	40,392,747	1,236,891
Saskatchewan .....	37,278,001	1,144,062
British Columbia .....	279,041,497	8,563,784
TOTAL .....	594,533,860	12,108,244



Table 36 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF ZINC, 1939 - (Concluded)

	Pounds	Value \$
<u>IMPORTS -</u>		
Zinc dust .....	1,301,900	80,571
Zinc in blocks, pigs, bars and rods, and zinc plates, n.o.p. ....	38,500	3,347
Zinc in sheets and strips, and zinc plates for marine boilers .....	7,004,500	547,514
Zinc spelter .....	1,200	96
Zinc white (zinc oxide) .....	10,539,650	450,954
Zinc sulphate .....	566,118	14,037
Zinc, chloride of .....	2,128,454	84,290
Zinc, manufactures of, n.o.p. ....	...	283,127
Lithopone .....	21,252,814	765,522
TOTAL .....	...	2,229,458
<u>EXPORTS -</u>		
Zinc, contained in ore .....	41,260,600	526,905
Zinc, scrap, dross and ashes .....	3,918,500	51,741
Zinc, spelter .....	311,989,100	9,343,586
TOTAL .....	357,168,200	9,922,232

NOTE: CORRESPONDING DATA FOR 1940 NOT PUBLISHED.

Table 37 - REFINED NEW ZINC PRODUCED IN CANADA, 1931 - 1940

Year	Short tons	Year	Short tons
1931 .....	118,622	1936 .....	151,103
1932 .....	86,141	1937 .....	158,542
1933 .....	91,946	1938 .....	171,932
1934 .....	134,917	1939 .....	175,641
1935 .....	142,523	1940 .....	(a)

(a) Not published.

Table 38 - AVAILABLE STATISTICS ON THE CONSUMPTION OF ZINC IN SPECIFIED CANADIAN MANUFACTURING INDUSTRIES, 1938 and 1939

Industry	Items Used	1938 Pounds	1939 Pounds
Brass and copper products .....	(Other zinc .....	286,395	559,567
	(Zinc ingots and slabs .....	4,540,598	6,375,989
	(Zinc scrap .....	47,632	50,637
White metal alloys .....	(Zinc spelter .....	2,256,403	2,464,493
	(Zinc scrap .....	627,551	771,921
Electrical apparatus .....	(Zinc ingots and bars .....	1,117,940	1,764,270
	(Zinc sheets .....	2,319,830	2,919,148
Acids, alkalies and salts .....	Zinc metal .....	2,717,080	4,467,640
Iron and steel .....	Zinc .....	26,988,313	34,149,679
Miscellaneous chemicals .....	Zinc sheets and spelter .....	196,543	226,965
GRAND TOTAL .....		40,552,209	53,750,309

NOTE: Data for 1940 not yet complete.

Table 39 - MANUFACTURE OF ZINC IN THE UNITED STATES, BY PERCENTAGE, 1926, 1929, 1938 - 1940

NOTE: The following data are supplied by the American Bureau of Metal Statistics and are included as indicative of the recent trend in zinc consumption.

Purpose	1926	1929	1938	1939	1940
Galvanizing .....	46.60	45.71	47.03	43.93	39.92
Brass making .....	28.92	29.17	24.23	27.96	32.27
Rolled zinc .....	13.87	10.77	10.93	9.90	8.07
Die castings .....	2.17	5.68	11.40	13.42	16.13
Other purposes .....	8.44	8.67	6.41	4.79	3.61
TOTAL .....	100.00	100.00	100.00	100.00	100.00

Table 40 - WORLD'S PRODUCTION OF ZINC (SPELTER) (a), 1933, 1938 and 1939 (Supplied by the American Bureau of Metal Statistics)  
(In metric tons—2,204.6 lb.)

Country	1 9 3 3	1 9 3 8	1 9 3 9
United States .....	294,572	414,581	488,253
U.S.A. from foreign ore (b) .....	...	7,754	6,586
Mexico .....	27,862	37,502	46,257
Canada .....	83,429	155,726	161,755
Total North America .....	405,863	615,563	702,851
Belgium .....	137,300	210,400	185,700
Czechoslovakia .....	6,786	8,876	(c)
France .....	55,536	62,172	60,262
Germany .....	50,867	192,482	212,285
Great Britain .....	41,717	56,190	50,440
Italy .....	22,230	34,065	33,566
Netherlands .....	18,478	25,300	20,534
Norway .....	44,948	46,500	45,000
Poland .....	84,729	110,786	117,936
Russia .....	16,620	*80,000	*90,000
Spain .....	8,547	7,652	11,340
Yugoslavia .....	3,056	3,956	4,182
Total Europe .....	490,814	838,379	831,245
Australia .....	54,818	70,941	70,762
Japan .....	30,658	*50,000	*55,000
French Indo-China .....	3,150	4,445	5,328
Rhodesia .....	18,840	10,379	12,899
TOTALS, ex U.S.A. ....	709,571	1,175,126	1,189,832
GRAND TOTALS .....	1,004,143	1,589,707	1,678,085

(a) The statistics in this table are the summaries of production as made by the metallurgical works of the world whose principal business is the reduction of ore. Insofar as they produce slab zinc from secondary material such is included. The production of zinc dust is excluded. Spelter produced in the United States from Mexican ore has been credited to Mexico.

(b) Excluding production from Mexican ore.

(c) Included with Germany.

Excluded from the above accounting is spelter produced by redistillers who treat nothing but old material.

Included in the statistics of the table on this page, the derivation from secondary products, such as galvanizers dross, skimmings, etc., so far as known, has been as follows, in metric tons:

	1933	1938	1939	1940
United States .....	17,000	19,000	33,500	29,600
Europe .....	26,400	27,600	...	...

The production of spelter in U.S.A. in 1940, exclusive of the production through graphite retorts, was 707,935 short tons, of which 32,660 was derived from secondary material and 85,287 from foreign ore. Of the derivation from foreign ore 61,027 was from Mexican ore. The spelter production in Yugoslavia in 1940 was 6,642 short tons.

According to the United States Bureau of Mines, the United States consumption and smelter production of primary zinc reached unprecedented proportions in 1940 as a result of the stimulation of industrial activity by the National Defense program and British orders for munitions. The quotation for prime western zinc at St. Louis was 5.75 cents per pound at the beginning of 1940; 7.25 cents at the close, and averaged 6.34 cents for the year compared with 5.12 cents in 1939 and 4.61 cents in 1938. After the German invasion of the low countries and the collapse of France early in May, shipments rose abruptly, reaching a high in September. Demand exceeded production in every month beginning with May, so that there was a steady decline in producers' stocks thereafter. Demand for zinc from abroad in 1940 necessitated importation into the United States of large quantities of foreign ore by smelters. In consequence that production of foreign



zinc increased more than four-fold over 1939 and was the largest output recorded since 1916. There were large increases in receipts of ore from Mexico, Canada and Newfoundland in 1940. The zinc industry has undertaken a large building program and at the close of 1940 additions to several reduction plants were under way or scheduled for 1941. In some cases the United States government has cooperated by agreement to a 5-year amortization of investment as provided in recent tax legislation.

Table 41 - CADMIUM PRODUCTION(x) IN CANADA, 1928 - 1940

Year	Pounds	\$	Year	Pounds	\$
1928 .....	491,894	341,374	1934 .....	293,611	95,665
1929 .....	773,976	675,294	1935 .....	580,530	441,203
1930 .....	456,582	337,871	1936 .....	785,916	699,465
1931 .....	323,139	180,958	1937 .....	745,207	1,222,140
1932 .....	65,425	26,824	1938 .....	699,138	561,799
1933 .....	246,041	78,733	1939 .....	939,691	662,209
			1940 .....	(a)	(a)

(x) Until 1936 cadmium was produced only in British Columbia; since 1936 the metal has been produced both at Flin Flon, Manitoba, and at Trail, British Columbia.

(a) Not published.

Since 1939 the Consolidated Mining and Smelting Company has produced antimony metal at the Trail smelter; the total production of the metal from British Columbia ores in 1939 totalled 1,224,385 pounds valued at \$151,321. This was the first commercial output of primary antimony metal in Canada in several years. Bismuth metal is also recovered at the Trail smelter from silver-lead-zinc ores, the production in 1939 amounting to 409,449 pounds valued at \$466,362. In addition to metals, there has been an increasing quantity of sulphur salvaged yearly in the smelting of silver-lead-zinc ores in the Trail plants of the Consolidated Mining and Smelting Company. This has been recovered in both the gaseous and elemental forms and is utilized in the manufacture of sulphuric acid and fertilizers.

#### OPERATORS IN THE CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1940

(x) Active but not producing.

<u>Name of Operator</u>	<u>Head Office Address</u>	<u>Location of Mine</u>
<u>NOVA SCOTIA -</u>		
British Metal Corporation (Canada) Ltd.	706 Dominion Square Bldg., Montreal, P.Q.	Stirling
<u>QUEBEC -</u>		
Calumet Mines Ltd. (x)	355 St. James St. W., Montreal	Grand Calumet Tp.
Federal Zinc and Lead Co. Ltd. (x)	708 Drummond Bldg., Montreal	Gaspé Co.
Lvall and Beidelman (x)	708 Drummond Bldg., Montreal	Gaspé Co.
Tetreault, P. Estate of (x)	70 Holyrood Ave., Outremont	Montauban les Mines
<u>ONTARIO -</u>		
Lennox Mines Co. Ltd. (x)	132 St. James St. W., Montreal, P.Q.	Lennox-Addington Co.
<u>BRITISH COLUMBIA -</u>		
Allen, Geo. (McAllister)	Nelson	Slocan M.D.
Anderson, Carl (Humming Bird)	Grand Forks	Greenwood M.D.
Base Metals Mining Corp. Ltd.	350 Bay St., Toronto, Ont.	Field
Battal and Walters (Silver Ridge)	New Denver	Slocan M.D.
Beaverdell-Wellington Synd. Ltd.	Greenwood	Greenwood M.D.
Bergstrom, Ed. (Senator)	Box 206, Nelson	Slocan M.D.
Campbell, Colin J. (Bosun)	4675 W. 5th Ave., Vancouver	Slocan M.D.
Consolidated Mining & Smelting Company of Canada Ltd.	Trail	Ainsworth M.D.
Cork Province Mines Ltd.	Kaslo	Fort Steele M.D.
Doney, E. (Victor)	Box 17, Sandon	Ainsworth M.D.
Falconer, T. W. (Dolly Varden)	Alice Arm	Slocan M.D.
		Portland Canal M.D.

OPERATORS IN THE CANADIAN SILVER-LEAD-ZINC MINING INDUSTRY, 1940  
(Concluded)

(x) Active but not producing.

<u>Name of Operator</u>	<u>Head Office Address</u>	<u>Location of Mine</u>
<u>BRITISH COLUMBIA (Concluded) -</u>		
Galena Farm Cons. Mines Ltd.	475 Howe St., Vancouver	Slocan M.D.
Hicks, Wm. (Ottawa)	Slocan	Slocan M.D.
Highland Bell Ltd.	Box 280, Creston	Greenwood M.D.
Highland Chief Mine Ltd. (x)	Box 782, Kelowna	Greenwood M.D.
Iron Mountain Ltd. (x)	6 Royal Bank Bldg., Nelson	Nelson M.D.
Kelly, A. W. and Herman, J. J. (Duthie)	Smithers	Omineca M.D.
McCready, G. E. (Caledonia)	Retallack	Ainsworth M.D.
Molly Hughes Inc.	New Denver	Slocan M.D.
Noble Five Mines Ltd.	490 Baker St., Nelson	Slocan M.D.
Nordman, J. L. (Tiger)	Beaverdell	Greenwood M.D.
Parker, H. M. (Hampton)	1489 Lookout St., Trail	Slocan M.D.
Ross, S. N. (Rambler-Cariboo)	Box 166, Nelson	Slocan M.D.
Ruth Hope Mining Co. Ltd.	475 Howe St., Vancouver	Sandon
Sally Leasers	c/o J. L. Nordman, Beaverdell	Greenwood M.D.
Sally Mines Ltd.	Box 1122, Penticton	Greenwood M.D.
Sibillean, S. (Freddie Lee)	Sandon	Slocan M.D.
Silver Crest Mining Synd. (x)	Revelstoke	Lardeau M.D.
Silversmith Mines Ltd. (x)	Sandon	Slocan M.D.
Stedile, C. (Jo-Jo; Capella)	New Denver	Slocan M.D.
Tipping, C. W. (Republic)	Slocan City	Slocan M.D.
True Flssure Mine	Guarantee Trust Bldg., Windsor, Ont.	Lardeau M.D.
Utica Mines Ltd. (x)	640 W. Pender St., Vancouver	Ainsworth M.D.
Western Exploration Co. Ltd.	Silverton	Slocan M.D.
Wesko Mines Ltd. (Centre Star)	640 Pender St. W., Vancouver	Nelson M.D.
Whitewater Mine	Stock Exchange Bldg., Vancouver	Ainsworth M.D.
Zincton Mines Ltd.	616 Stock Exchange Bldg., Vancouver	Slocan M.D.
<u>YUKON -</u>		
Settlemier and Bermingham	Mayo	Mayo Dist.
Treadwell Yukon Corp. Ltd.	1022 Crocker Bldg., San Francisco, Cal., U.S.A.	Mayo Dist.

NOTE - In addition to the operators shown for British Columbia, there were numerous properties worked under lease from which official reports were unobtainable.

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